

CalNex Forecast Notes - Tuesday, June 8, 2010

Anticipated Activities of Platforms

NOAA P3

Note: Deployed to Gulf of Mexico, return to Ontario Thursday night, at earliest

NOAA Twin Otter

Tue: No Flight

Wed: transit to Sacramento, sampling Central Valley

Thu - Mon: No Flights - maintenance

R/V Atlantis

Tue: San Francisco

DOE G-1 & NASA B-200 (CARES - <http://campaign.arm.gov/cares>)

Tue: morning and afternoon flights

Wed: No Flights

Local Features

Tue:

Sac: Sac plume forecast to skirt north of receptor site although surface flow currently from SW; cirrus clouds today; mixing to 3000-5000' in afternoon; good to moderate air quality

Wed:

Sac: Sac plume forecast to north (misses receptor site); altocumulus and cirrus anticipated; afternoon PBL ~4000'; good air quality

SJV: mixing to 3000-5000'; good air quality

Thu:

Sac: Sac plume to SSE into SJV

California Synoptic Overview - Jason Branz; jbranz@arb.ca.gov

Tuesday June 8

- Mainly zonal flow across CA
- Onshore flow at the surface, deep marine layer in the south
- Strong onshore flow through the Delta

Wednesday June 9

- PacNW trough deepens, digs southward into far N CA
- Onshore flow increases, marine layer deepens
- Transport flow remains W

Thursday June 10

- Trough digs farther south, transport flow shifts W/NW
- Onshore flow continues for all areas

Friday-Weekend

- Fri/Sat: Trough axis over NV, northerly transport along the coast
- Major model differences – GFS builds strong ridge, Euro keeps trough on Sunday

Large Scale Transport Notes - Brad Pierce (brad.pierce@noaa.gov)

LA/SAC AIRNOW Site Comparison

O3 and PM2.5 at Riverside reached Moderate levels.

Good SAC O3 and PM2.5 AQ during FX period

O3 and PM2.5 analysis low at Riverside. O3 analysis in good agreement, PM2.5 high at SAC.

LA/SF AIRNOW Ensemble

NOT UPDATED TODAY

5km RDF FX 00Z 06/09 (Tues Afternoon)

IC polluted air offshore of Northern CA. Low CO/O3/PM2.5 air over Central CA.

500m RDF FX 00Z 06/09 (Tue Afternoon)

IC CO/O3 enhancement offshore. High CO/O3 air mass over Central CA.

Moderate (5-10 ppbv/day) background O3 P-L over LA & SF

Descent over Southern CA associated with elevated CO/O3

500m RDF FX 00Z 06/10 (Wen Afternoon)

IC CO/O3 enhancement off of Southern CA, low CO/O3 airmass inland over central CA.

Moderate (5-10 ppbv/day) background O3 P-L over LA& SF

Descent offshore of LA associated with elevated CO/O3

500m RDF FX 00Z 06/11 (Thu Afternoon)

CO/O3 enhancement over Southern CA.

Moderate (5-10 ppbv/day) background O3 P-L over LA

Low (~5ppbv/day) background O3 P-L over SF

Descent over Southern CA associated with elevated CO/O3

500m RDF FX 00Z 06/12 (Fri Afternoon)

Broad CO enhancement over Western US. O3 enhancement over Southern CA.

Strong descent over Southern CA and offshore

Moderate (5-10 ppbv/day) background O3 P-L over LA

Low (~5ppbv/day) background O3 P-L over SF

Descent over Southern CA associated with elevated CO/O3

Area Forecast Details

San Francisco Bay - Danny Kam (dkam@airquality.org)

Tuesday

- NW 20kt; lightens into 15kt late afn and shift W at late night
- MBL 1,000ft increase to 1,500 ft

Friday

- NW continues, around 25 to 30kt

Extended

- Gradient relaxes future in the weekend, returning into moderate wind on Saturday and light on Sunday

Sacramento Valley - Danny Kam (dkam@airquality.org)

Tuesday

- Northern SV - to SE 5 to 10kt early AM, shifts S by mid-mrning; becomes 10kt in afn through the evening
- Southern SV - SW 5kt to 10kt, strengthen to 10kt in late afn, lightens slightly in the evening
- AM PBL around 1,000ft; PM PBL 3,000 to 5,000ft
- Cirrostratus all day
- Max afn temp: 28C; moderate air quality, max-8hr mean O3 in 0.06 ppm range

Wednesday

- Northern SV - SE 10kt early AM, shift S around late AM and strengthen to 15kt in late afn; lightens to SE 5kt to 10kt at late night
- Southern SV - S to SW 5kt to 10; dies down a bit in late AM before picking up again into 10 to 15kt in the afn; SW 5kt at late night
- AM PBL between 500ft; PM PBL around 4,000ft
- Partly cloudy, altocumulus in AM, with a bit of stratus in AM for northern SV; becomes mostly clear in the afn; cirrus later at night; 10% chance of rain
- Max afn temp: 27C; good air quality, max-8hr mean O3 in 0.05 ppm range

Thursday

- Southern SV - NW 5kt and below; becomes 10kt around mid-late mrng and slightly above 10kt in late afn
- Northern SV will experience stronger N wind and earlier than southern SV
- AM PBL around 1,500ft; PM PBL 4,000 to 8,000ft
- Some cirrus moves through in the AM, otherwise clear
- Max afn temp: 27C; good air quality max-8hr mean O3 in 0.05 ppm range

Friday

- NW wind, around 10kt and above
- Blue sky
- Max afn temp 30C; good air quality

Extended

- Gradient moves further south compared to Friday and then relaxes later in the day; N to NE on Sunday and relaxes further into light wind
- No clouds
- Max afn temp warms to low 30C; expects air quality to worsen a bit on Sunday

San Joaquin Valley - Shawn Ferreria (Shawn.Ferreria@valleyair.org)

Tuesday June 8

Surface Winds: Surface obs this morning: Light to moderate NW flow Fresno/Kings counties northward, with calm winds in Kern and Tulare Counties. The wind profiler at Chowchilla shows a light to moderate N to NW flow from the surface up to 3,000 feet, shifting from the south to southeast above. The lower air profiler at Lost Hills depicts light and variable wind flow up to 6,000, slightly strengthening from the west to northwest above. CANSAC shows light to moderate flow over the Delta, Altamont and Pacheco Passes this morning continuing into this evening. By this afternoon, a general northwesterly flow pattern will be established over the SJV. Outflow is present toward the Deserts and SLO. Local terrain driven flow will continue over the Sierra's (upslope during day, downslope at night).

Boundary Layer Mixing: The morning aircraft sounding from Fresno depicts a moderate inversion of 9 degrees Fahrenheit from the surface up to 2,500 feet. CANSAC shows that maximum boundary layer mixing depths will range from 3,500 to 5,000 feet from Merced County southward, with maximum mixing depths between 1,000 and 2,500 feet over San Joaquin and Stanislaus counties.

Air Quality: Good air quality (from Madera County northward) due to ozone and Moderate air quality (from Fresno County southward).

Wednesday June 9

Surface Winds: CANSAC shows similar onshore flow conditions on Wednesday as compared to Tuesday through the Delta, Pacheco and Altamont passes. Outflow will continue out toward the Deserts and SLO.

Boundary Layer Mixing: CANSAC shows that maximum mixing depths will range from 3,000 to 5,000 feet District-wide.

Air Quality: Air quality is predicted to be in the good range.

Thursday June 10 through Saturday June 12

Surface Winds: Onshore flow conditions will continue over the SJV air basin from Thursday into mid-day Friday as a trough remains over the West Coast. The northwesterly flow will slowly weaken by late Friday as offshore flow develops over the region as the trough departs to the east.

Boundary Layer Mixing: Boundary layer mixing depths will begin to lower on Friday as high pressure noses toward the region.

Air Quality: Air quality will be good District-wide on Friday, deteriorating slightly into the upcoming weekend.

Potential Targets for next Flight Day

Analyze northwesterly wind flow patterns over the SJV, especially flow coming into the air basin through the Delta, Altamont, and Pacheco passes. LLNL Site 300, located near Altamont pass in southwestern San Joaquin County, may be

conducting their prescribed burn project today (winds permitting). (74 acres).
Their next project day will be roughly 530 and 630 acres respectively.

Central California - COAMPS forecast plots of cloud base heights and 10-m wind streamlines available in slides product

Central Coast - No forecasts planned until CalNex operations in vicinity

SoCal Coastal Waters - No forecasts planned until CalNex operations in vicinity

South Coast - No forecasts planned until CalNex operations in vicinity